

ABSTRACT

Filter is part of the RF stage which has a function for passing a signal at a particular frequency and drown out other frequencies. Over time many methods developed for the design and realization of the filter. Problems is when the filter you want to change the frequency of its work should be performed designer and re-calculate the dimensions of the filter to get a working frequency and bandwidth of the destination, of course, will lead to inefficiencies and costs to realize the larger filter. The solution to these problems is how to design a filter that can be changed with the operating frequency bandwidth is maintained without having to plan and realize again.

In this final project designed a bandpass filter that is tunable using varactor diode as the tuner frequency ranges wish to be missed and methods Chebysev Interdigital to change into a form mikrostip. Interdigital method itself has a channel length of the resonator is $\lambda / 4$ at the center frequency band and short-circuit at one end and open-circuit at the other end.

At this stage of the design and simulation of tunable bandpass filter works in the frequency range 1000 MHz -1660 MHz with a bandwidth is 20 MHz. After realization and measurement bandpass filter works in the frequency range 852.5 MHz-1369 MHz with an average bandwidth is 46.65 MHz. The shift occurred 157.5 MHz from frequency range limits the start and 291 MHz from frequency range limits the end compared with the simulation results.

Keyword: *Filter Interdigital, Tunable Bandpass Filter, Dioda Varaktor*